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Information technology — JPEG XR image coding system —

Part 4: Conformance testing

Technologies de l'information — Système de codage d'image JPEG XR —

Partie 4: Essai de conformité

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 29199-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*, in collaboration with ITU-T.

This part of ISO/IEC 29199 is technically aligned with ITU-T Rec. T.834 but is not published as identical text.

ISO/IEC 29199 consists of the following parts, under the general title *Information technology — JPEG XR image coding system*:

— *Part 2: Image coding specification*

— *Part 3: Motion JPEG XR*

— *Part 4: Conformance testing*

— *Part 5: Reference software*

The following part is under preparation:

— *Part 1: System architecture* [Technical Report]

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Introduction

This part of ISO/IEC 29199 has been developed by ITU-T and ISO/IEC in a collaborative team that is referred to as the Joint Photographic Experts Group (JPEG). It is published as technically-aligned twin text by both organizations (ITU-T and ISO/IEC).

This part of ISO/IEC 29199 specifies a set of tests designed to verify whether codestreams, files, encoders, and decoders meet the normative requirements specified in ITU-T Rec. T.832 | ISO/IEC 29199-2 (*Information technology – JPEG XR image coding system – Image coding specification*).

- A codestream (or file) can be claimed to conform to ITU-T Rec. T.832 | ISO/IEC 29199-2 if it meets the normative requirements for such codestreams (or files) specified in ITU-T Rec. T.832 | ISO/IEC 29199-2.
- An encoder can be claimed to have codestream (or file format) conformance to ITU-T Rec. T.832 | ISO/IEC 29199-2 if the codestreams (or files) that it generates are conforming codestreams (or files).
- A decoder can be claimed to conform to a specified subset of ITU-T Rec. T.832 | ISO/IEC 29199-2 capabilities (such as a combination of "profile" and "level" capabilities) if it can properly decode all codestreams (or files) obeying the constraints specified in ITU-T Rec. T.832 | ISO/IEC 29199-2 for the specified subset of capabilities.

The tests specified in this part of ISO/IEC 29199 provide methods for (non-exhaustive) testing of whether encoders and decoders meet these requirements.

Characteristics of codestreams, files, and decoders are specified in ITU-T Rec. T.832 | ISO/IEC 29199-2. The characteristics of a codestream (or file) indicate the subset of that standard that is exploited within the codestream (or file). Examples are the selected values of the image size and number of associated color components. Decoder characteristics specify the properties and capabilities of the applied decoding process. The capabilities of a decoder specify which codestreams (or files) the decoder can decode by specifying the subset of ITU-T Rec. T.832 | ISO/IEC 29199-2 syntax features and values that may be exploited in the codestreams (or files) that it will decode. A codestream (or file) can be decoded by a conforming decoder if it is a conforming codestream (or file) and the characteristics of the codestream (or file) are within the subset of the standard that is specified by the decoder capabilities.

Procedures are specified in this part of ISO/IEC 29199 for testing the conformance of codestreams (or files) and decoders to the requirements specified in ITU-T Rec. T.832 | ISO/IEC 29199-2. Given the set of characteristics claimed, the requirements that shall be met are fully determined by ITU-T Rec. T.832 | ISO/IEC 29199-2. This part of ISO/IEC 29199 summarizes these requirements, cross references them to characteristics, and specifies how conformance to them can be tested. Particular tests to verify codestream and decoder conformance are specified.

A set of data for use in such tests is provided as an electronic attachment to this part of ISO/IEC 29199 and is considered an integral part thereof. When a decoder under test does not satisfy the requirements of the specified tests when operating on the provided data set, the decoder is indicated not to conform to ITU-T Rec. T.832 | ISO/IEC 29199-2.

The specified testing of codestreams (or files) produced by encoders employs the reference software decoder specified in ITU-T Rec. T.835 | ISO/IEC 29199-5 (with source code available in electronic format). When a codestream (or file) cannot be decoded by the reference software decoder without generating non-conformance warning messages, the codestream (or file) is indicated not to conform to ITU-T Rec. T.832 | ISO/IEC 29199-2. When an encoder produces any such codestreams (or files) that cannot be decoded without warnings by the reference software decoder, the encoder is indicated not to conform to ITU-T Rec. T.832 | ISO/IEC 29199-2.

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Information technology — JPEG XR image coding system —

Part 4:
Conformance testing

1 Scope

This part of ISO/IEC 29199 specifies a set of tests designed to verify whether codestreams, files, encoders, and decoders meet the normative requirements specified in ITU-T Rec. T.832 | ISO/IEC 29199-2 (*Information technology – JPEG XR image coding system – Image coding specification*).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ITU-T Rec. T.832 | ISO/IEC 29199-2, *Information technology — JPEG XR image coding system — Image coding specification*

ITU-T Rec. T.835 | ISO/IEC 29199-5, *Information technology — JPEG XR image coding system — Reference software*

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